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CLAIMS

That which is claimed is:

1. A medical device comprising:

an expandable stent which takes the form of a small diameter skeletal tubular

5 member having a thin wall, said wall of said skeletal tubular member including a plurality of cells which are formed by a plurality of interconnected strut members; and,

an elongated removable slat member interwoven between at least two of said plurality of strut members to temporarily attach said removable slat member to said skeletal tubular member to thereby provide a cover for a portion of the wall of said

10 skeletal tubular member.

2. A medical device as defined in Claim 1, including a plurality of elongated removable slat members interwoven between said plurality of strut members to

temporarily attach said plurality of removable slat members to said skeletal tubular

15 member and to thereby provide a cover for a portion of the wall of said skeletal tubular member.

3. A medical device as defined in Claim 2, including a plurality of tethers each attached to one of said plurality of removable slat members in order to selectively remove

20 any one of said removable slat members to thereby provide a selective passage for blood flow through a portion of the wall of said skeletal tubular member.

4. A medical device as defined in Claim 3, wherein said tethers are removably attached to the removable slat members.

5. A medical device as defined in Claim 3, wherein said tethers take the form of elongated puller wires.

6. A medical device as defined in Claim 3, wherein said tethers are comprised of a bioabsorbable material.

10 7. A medical device comprising:
an expandable stent which takes the form of a hollow tubular member comprised of an expandable wire frame having a peripheral surface; and,
an elongated removable slat member carried by said hollow tubular member and providing a cover for a portion of the peripheral surface of said hollow tubular member.

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8. A medical device as defined in Claim 7, including a tether attached to said removable slat member so that said tether may be pulled to remove said slat member from said hollow tubular member.

20 9. A medical device as defined in Claim 8, wherein said tether is removably attached to said removable slat member.

10. A medical device as defined in Claim 8, wherein said tether is comprised of a bioabsorbable material.

11. A medical device as defined in Claim 7, including a plurality of removable slat members carried by said hollow tubular member to thereby provide a cover for a portion of the peripheral surface of said hollow tubular member.

12. A medical device as defined in Claim 11, including a plurality of tethers each attached to one of said plurality of removable slat members in order to selectively remove any one of said plurality of removable slat members.

13. A medical device as defined in Claim 12, wherein said plurality of tethers are removably attached to said removable slat members.

14. A medical device as defined in Claim 12, wherein said tethers takes the form of an elongated puller wire.

15. A medical device as defined in Claim 12, wherein said tethers are comprised of a bioabsorbable material.

16. A medical device comprised of:

An outer expandable stent which takes the form of a first hollow skeletal tubular member which defines a first peripheral surface;

a first plurality of removable slat members carried by said first skeletal tubular member and spaced apart at approximately equal distances around the first peripheral surface of said first skeletal tubular member to thereby provide a cover for a portion of said first peripheral surface;

5 an inner expandable stent which takes the form of a second hollow skeletal tubular member which defines a second peripheral surface;

a second plurality of removable slat members carried by said second skeletal tubular member and spaced apart at approximately equal distances around the second peripheral surface of said second skeletal tubular member to thereby provide a cover for a
10 portion of said second peripheral surface, said second skeletal tubular member being coaxially disposed within said first skeletal tubular member and being oriented such that said first plurality of removable slat members and said second plurality of removable slat members form a substantially continuous cover for said medical device;

a first plurality of tethers each attached to one of said first plurality of removable
15 slat members in order to selectively remove any one of said first plurality of slat members to thereby provide a selective passage for blood flow through the first peripheral surface;
and,

a second plurality of tethers each attached to one of said second plurality of removable slat members in order to selectively remove any one of said second plurality
20 of slat members to thereby provide a selective passage for blood flow through the second peripheral surface.

17. A medical device comprised of:

an outer expandable stent which takes the form of a first hollow skeletal tubular member which defines a first peripheral surface and having a first plurality of cells formed by a first plurality of interconnected strut members;

5 a first plurality of removable slat members interwoven between said first plurality of strut members of said first skeletal tubular member and spaced apart at approximately equal distances around the first peripheral surface of said first skeletal tubular member to thereby cover a portion of said first peripheral surface;

an inner expandable stent which takes the form of a second hollow skeletal
10 tubular member which defines a second peripheral surface and having a second plurality of cells formed by a second plurality of interconnected strut members; a second plurality of removable slat members interwoven between said second plurality of strut members of said second skeletal tubular member and spaced apart at approximately equal distances around the second peripheral surface of said second skeletal tubular member to thereby
15 cover a portion of said second peripheral surface, said inner expandable stent being coaxially disposed within said outer expandable stent and oriented such that said first plurality of slat members and said second plurality of slat members form a substantially continuous cover for said medical device;

a first plurality of detachable tethers each attached to one of said first plurality of
20 slat members in order to selectively remove any one of said first plurality of slat members to thereby provide a selective passage for blood flow through the first peripheral surface of said outer expandable stent; and,

a second plurality of detachable tethers each attached to one of said second plurality of slat members in order to selectively remove any one of said second plurality of slat members to thereby provide a selective passage for blood flow through the second peripheral surface of said inner expandable stent.

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18. A method of treating a vascular disease comprising the steps of:

providing a covered stent having an expandable tubular frame, a cover member carried by said tubular frame and including a detachable portion;

inserting said covered stent into a blood vessel of a patient;

10 positioning said covered stent adjacent to a diseased portion of said blood vessel;
and,

removing said detachable portion of said cover member from said covered stent and withdrawing said detachable portion from said blood vessel thereby allowing blood to flow through a portion of the cover member of said covered stent at the location of the
15 detachable portion and into surrounding blood vessels.

19. A method of treating an aneurysm comprising the steps of:

providing an expandable stent which takes the form of a skeletal tubular member having a peripheral surface and a plurality of removable slat members each carried by

20 said skeletal tubular member to provide a cover for a portion of said peripheral surface;

inserting said expandable stent into a blood vessel of a patient;

advancing said expandable stent through said blood vessel until said expandable stent is aligned with and covering an aneurysm in said blood vessel; and,

removing one of said plurality of removable slat members to thereby provide blood flow to a branching blood vessel.

20. A method of treating an aneurysm comprising the steps of:

5 providing a medical device including an outer expandable stent which takes the form of a first skeletal tubular member which defines a first peripheral surface, a first plurality of removable slat members carried by said first skeletal tubular member to provide a cover for a portion of said first peripheral surface, a first plurality of tethers each attached to one of said first plurality of slat members, an inner expandable stent
10 which takes the form of a second skeletal tubular member which defines a second peripheral surface, a second plurality of removable slat members carried by said second skeletal tubular member to provide a cover for a portion of said second peripheral surface, and a second plurality of tethers each attached to one of said second plurality of slat members, said inner expandable stent being coaxially disposed within said outer
15 expandable stent and positioned such that said first plurality of removable slat members and said second plurality of removable slat members form a substantially continuous cover for said medical device;

inserting said medical device into a blood vessel of a patient;

advancing said medical device distally through said blood vessel until said
20 medical device is aligned with and covering an aneurysm in said blood vessel; and,

selectively removing any one of said second plurality of removable slat members by moving the tether attached to said removable slat member proximally and thus allowing blood to flow into a branching blood vessel.

21. A medical device comprising:

an expandable stent which takes the form of a small diameter skeletal tubular member having a thin wall;

5 a cover member carried by said skeletal tubular member including a removable section; and,

an elongated activation member connected to said removable section for withdrawing the removable section of the cover member from the skeletal tubular member in order to permit blood to flow through a portion of the wall of the skeletal
10 tubular member.

22. A medical device as defined in Claim 21, wherein said elongated activation member is removably attached to said removable section of the cover member.

15 23. A medical device as defined in Claim 21, wherein said elongated activation member takes the form of a puller wire.

24. A medical device as defined in Claim 21, wherein said elongated activation member is formed of a bioabsorbable material.

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25. A medical device comprising:

an expandable stent which takes the form of a small diameter skeletal tubular member having a thin wall, said wall of said skeletal tubular member including a plurality of cells which are formed by a plurality of interconnected strut members;

5 a cover member carried by said skeletal tubular member including a plurality of removable sections; and,

a plurality of elongated activation members each connected to one of said removable sections for withdrawing a selected one of said plurality of removable sections of said cover member.

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26. A medical device as defined in Claim 24, wherein said elongated activation member is removably attached to said removable section of the cover member.

27. A medical device as defined in Claim 24, wherein said elongated activation

15 member takes the form of a puller wire.

28. A medical device as defined in Claim 24, wherein said elongated activation member is formed of a bioabsorbable material.

20 29. A medical device comprising:

an outer expandable stent which takes the form of a first hollow skeletal tubular member having a peripheral surface;

a first cover member carried by said first hollow skeletal tubular member, and covering a portion of the peripheral surface of said first skeletal tubular member and said first cover member including a first removable section;

an inner expandable stent which takes the form of a second hollow skeletal tubular member having a peripheral surface and being disposed coaxially within the first skeletal tubular member;

a second cover member carried by said second hollow skeletal tubular member and covering a portion of the peripheral surface of said second skeletal tubular member, said second cover member including a second removable section, said first hollow skeletal tubular member being oriented with respect to said second hollow skeletal tubular member such that the first cover member and second cover member cover substantially the entire peripheral surface of said expandable stent; and,

a first elongated activation member coupled to said first removable section for withdrawing said first removable section from said first hollow skeletal tubular member; and,

a second elongated activation member coupled to said second removable section for withdrawing said second removable section from said second hollow skeletal tubular member in order to permit blood to flow through a portion of the peripheral surface of said first hollow skeletal tubular member.

30. A medical device as defined in Claim 28, wherein said elongated activation member is removably attached to said removable section of the cover member.

31. A medical device as defined in Claim 28, wherein said elongated activation member is removably attached to said removable section of the cover member.
32. A medical device as defined in Claim 28, wherein said elongated activation member is removably attached to said removable section of the cover member.